Things to Know, Understand and Do
For Chapter 15: Applications of Aqueous Equilibria

1) Define what a common ion is and how it impacts weak acid/weak base hydrolysis.
2) Define what a buffer is, what buffer capacity is, and determine which buffer system should be used to buffer a given pH.
3) Perform calculations to determine the $[H^+]$, $[OH^-]$, pH and pOH after know volumes of known concentrations (therefore known moles) of strong acids or strong bases are added to a buffer system of known concentration. [ICF to ICE]
4) Titration curves: a. APPEARANCE: determine from shape if it is a strong acid/strong base, weak acid/strong base, or strong acid/weak base titration from shape. b. Find all equivalence points and determine concentration of unknown. c. Determine how PROTIC the acid is and determine all K_a's and K_b's d. Figure out what indicator could be used to determine the endpoint of the titration.
5) Indicators understand how they work and how to select the best indicator for the endpoint of any given reaction.
6) Write the K_{sp} expression for any insoluble salt.
7) Calculate the K_{sp} values from experimental data of molar solubility or solubility in g/volume.
8) Estimate the solubility of a salt from the K_{sp} value.
9) Understand what molar solubility is and how to calculate it.
10) Calculate the solubility of a salt in the presence of a common ion.
11) Understand the effect of basic anions on the solubility of a salt.
12) Decide whether a precipitate will form when solutions are mixed or ion concentrations are known.
13) Calculate ion concentrations that are required to begin precipitation of an insoluble salt.
14) Understand that the formation of a complex ion can increase the solubility of a salt and calculate the K_f for this reaction.
15) Use K_{sp} values to devise a method for separating ions in solution from one another.

Ch 15 Homework
Pg 740; Q 4, 11,18
Pg 741; Q 33, 35, 39,41, 50, 51
Pg 742; Q 53, 56, 61, 67
Pg 743; Q 74, 76, 77, 80, 88, 97
Pg 744; Q 105,107
Pg 747; Q 153

Student Presentations
Pg 741; Q 37
Pg 742; Q 63
Pg 743; Q 98